Paper Analysis- 2

**Weaving versus Blending**

**-Paul Sampson Ledala**

After analyzing the two papers 2A & 2B, there are more differences than similarities. The first one is 2A was presenting a visualization plot (1D and 2D summary plot) for an easy way to visualize a collection of descriptive statistics giving detailed insights. 2B (Weaving vs Blending) was focused on a comparative analysis between color carrying capacities of the two methods presented. The second difference in terms of the data used by the visualization is that 2B works with a single distribution, multiple distributions, and different datasets; whereas 2A uses blending and weaving colors to present multivariate data. Another interesting topic in 2A is the ‘graphical depiction of uncertainty’ and, indications of error and levels of confidence in summary statistics.

In Weaving vs Blending, the paper presents an experimental conclusion that color weaving is consistently better than color blending. We can have up to 4 different color woven combinations with error rate less than 10%. That is significant research, as we have a lot of cartographic visualization data which is usually multivariate (and can be shown on a choropleth map). Color weaving gives us an effective tool to represent up to 4 dependent variables in a multivariate distribution.

Multivariate data can also be presented using heatmaps, tables, pair-wise scatter plots (with hue for 3D), parallel coordinates, etc. But for data distributions like the ones taken in the paper- median household income, percentage of population with high school degree, percentage of population living under the poverty line, etc.; a choropleth thematic map is the obvious choice. While considering multiple dependent variables, color weaving choropleth map would be effective.

This representation also is bound to the same limitations that other color-coded visualizations have. 8-12% of male, and 1% of females have color deficiencies. Using color in visualizations may miscommunicate information to a large percentage of population. Another limitation is using color coding for continuous data points. We cannot have color differences for each decimal value! Some parameters like temperature/wind speed are predominantly used in choropleth maps. So, the current research could be improved by showing that it can be applied to continuous data as well.

I hypothesize that color weaving could also be used in heatmaps to represent multivariate data having about 4 dependent variables. But I haven’t seen such a visualization before. The concept of color weaving/color blending is new to me. So, I’ve learnt a new data vis. trick in representing multivariate data. This is especially important to me for the Baltimore crime project I’m working on, as it is geospatial data which is multivariate. I could use color weaving for quantitative multivariate data.